TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT
LEAD DECONTAMINATION FOR THE S&M PROGRAM

Identification No.: RL-DD059
Date: August 2001
Program: Surveillance and Maintenance
OPS Office/Site: Richland Operations Office/ Hanford Site
PBS No.: RL-RC01
Waste Stream: LLW (ER-05, risk = 4) and MLLW lead (ER-02, risk = 4)
TSD Title: N/A
Waste Management Unit (if applicable): N/A
Facility: N/A

Priority Rating: This entry addresses the Accelerated Cleanup: Paths to Closure (ACPC) Priority:

____ 1. Critical to the success of the Accelerated Cleanup: Paths to Closure (ACPC)
____ 2. Provides substantial benefit to the ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
_X_ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Decontamination of surface contaminated lead for the Surveillance and Maintenance Program.

Need/Opportunity Category: *Technology opportunity* - the project desires an alternative to the current or planned baseline technology/process (i.e., a baseline exists but can be improved).

Need Description: Approximately one hundred thousand pounds of surface contaminated lead will have to be disposed of during decommissioning at the Hanford Site. Some of the lead was mined prior to the use of nuclear devices and may be useable for shielding in counters where background needs to be shielded. The lead is currently slated for micro-encapsulation and burial at the Environmental Restoration Disposal Facility (ERDF).

Schedule Requirements:
Earliest Date Required: 10/1/2001
Latest Date Required: 9/30/2046

Problem Description: Approximately one hundred thousand pounds of surface contaminated lead will have to be disposed of during decommissioning at the Hanford Site. With the current desire to reuse and recycle material, it is desirable to find a cost-effective alternative to disposition for the lead.

Benefit to the Project Baseline of Filling Need: Meeting this need would result in reuse of lead and reduction of waste.

Functional Performance Requirements: The lead must be decontaminated to free release for less than $60/ton ($0.165 per pound).

WBS No.	***TIP No***.
1.4.03.1.1.08.05.02.01	N/A

Relevant PBS Milestone: PBS-MC-030

Justification for Need:

Technical: Current methods are not cost-effective for reducing the waste volumes of radioactively contaminated lead.

Regulatory: Free release criteria would apply.

Environmental Safety & Health: Long-term liability (potential for a release) could be reduced with recycling and reuse of materials.

Cost Savings Potential (Mortgage Reduction): Rough order of magnitude (ROM) life cycle cost (LCC) savings of $100K for the DOE Complex, including an ROM cost savings of $20K at the Hanford Site. LCC savings estimate is based on the assumption that Rocky Flats, the Idaho National Engineering and Environmental Laboratory, the Oak Ridge National Laboratory, Fernald and the Savannah River Site would all realize similar savings to the Hanford Site. The Hanford Site estimate is based on there being approximately 100K pounds of lead on site (Project estimate) that costs $0.165/pound for micro-encapsulation and disposal (Project cost). Additional cost savings might be realized by recycling (e.g., the cost to make a drum from recycled material is less costly than to buy a new drum).

Cultural/Stakeholder Concerns: Reduced waste volumes placed in the ground will result in reduced long-term liability. Also, because lead is a land-banned material pretreatment is required prior to disposal.

Other: None identified.

Current Baseline Technology: Micro-encapsulation and burial at ERDF.

End User: Environmental Restoration Project

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